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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,105	04/23/2007	**Nadarajah Narendran**	RPI-134US	1207

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EXAMINER	
PAYNE, SHARON E	
ART UNIT	**PAPER NUMBER**
2875	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,105	NARENDRAN ET AL.	
	Examiner	Art Unit	
	SHARON E. PAYNE	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1108, 0309, 0409, 0609*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-10, 12-16 and 28-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Harada (U.S. Publication 2003/0230751).

Regarding claim 1, Harada discloses a source of light for emitting light (abstract), a down conversion material receiving the emitted light and converting the emitted light into transmitted light and backward transmitted light (5); and an optic device configured to receive the backward transmitted light and transfer the backward transmitted light outside of the optic device (Fig. 2, see reflectors on either side of source).

Concerning claim 2, Harada discloses the source of light is a semiconductor light emitting diode, including one of a light emitting diode (LED), a laser diode (LD), or a resonant cavity light emitting diode (RCLED). (See the abstract.)

Regarding claim 3, Harada discloses the down conversion material includes one of phosphor or other material for absorbing light in one spectral region and emitting light in another spectral region (paragraph 0053).

Concerning claim 4, Harada discloses the optic device includes a light transmissive material (Fig. 2, middle).

Regarding claim 5, Harada discloses the optic device includes at least one of a lens or a light guide having a light transmissive property (plate, 6).

Concerning claim 6, Harada discloses the optic device is further configured to direct the light emitted from the source toward the down conversion material (Fig. 2, see down conversion material 5).

Regarding claim 7, Harada discloses the optic device includes one of a lens or a light guide for directing substantially all of the light emitted from the source toward the down conversion material (Fig. 2, middle).

Concerning claim 8, Harada discloses the source of light is disposed adjacent a first end of the optic device (Fig. 2, bottom).

Regarding claim 9, Harada discloses the down conversion material is disposed adjacent a second end of the optic device, the second end opposed to the first end (Fig. 2, top--see material 5).

Concerning claim 10, Harada discloses the optic device is geometrically configured to transmit the backward transmitted light out of the optic device.(Fig. 2, see ray trace).

Regarding claim 12, Harada discloses the down conversion material (5) is deposited on a portion of the second end of the optic device (Fig. 2, top).

Concerning claim 13, Harada discloses the down conversion material is deposited to cover substantially the second end of the optic device (Fig. 2, top, see 5).

Regarding claim 14, Harada discloses a collecting I device for collecting backward transmitted light which has been transferred out of the optic device (Fig. 3, see reflectors 4 on either side of device covered with a material with a thickness 9). (The light goes out of the optic device and into the material before hitting the reflectors on the right and left.)

Concerning claim 15, Harada discloses the collecting device includes a reflector for directing the backward transmitted light that has been transferred out of the optic device away from the collecting device (Fig. 3, see reflectors on the right and left).

Regarding claim 16, Harada discloses (a) the source of light is disposed adjacent a first end of the optic device (Fig. 2, bottom), (b) the down conversion material is disposed adjacent a second end of the optic device (Fig. 2, top), and (c) the first end of the optic device is disposed adjacent a first end of the reflector (Fig. 2, bottom).

Concerning claim 28, Harada discloses a source of light for emitting light (abstract); a down conversion material receiving the emitted light and converting the emitted light into transmitted light and backward transmitted light (Fig. 2, see material 5); and an optic device configured to receive the backward transmitted light and transfer substantially all of the backward transmitted light outside of the optic device (Fig. 2).

Regarding claim 29, Harada discloses at least approximately 84% of the combined transmitted light and backward transmitted light is transferred outside of the optic device (Fig. 2, top).

Concerning claim 30, Harada discloses a source of light for emitting light (abstract); a down conversion material (5) receiving the emitted light and converting the emitted light into transmitted light and backward transmitted light (Fig. 2) and an optic device configured to receive the backward transmitted light and transfer the backward transmitted light outside of the optic device between the source of light and the down conversion material (Fig. 2, middle).

Regarding claim 31, Harada discloses a source of light for emitting light (abstract); a down conversion material (5) receiving the emitted light and converting the emitted light into transmitted light and backward transmitted light (Fig. 2); and an optic device configured to receive the backward transmitted light (Fig. 2, see reflectors on right and left), transfer the backward transmitted light outside of the optic device, and avoid transferring substantially all of the backward transmitted light into the source of light (Fig. 2, see ray trace).

Concerning claim 32, Harada discloses the optic device is configured to avoid transferring substantially all of the backward transmitted light into the down conversion material (Fig. 2, top).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 20-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwasa (U.S. Publication 2002/0047516 A1).

Regarding claim 20, Iwasa discloses a cylindrical optic having a light transmissive material comprising at least two separate segments (102a and 102b, Fig. 7a); at least one light radiation source disposed adjacent an end of the cylindrical optic (Fig. 1, left, 1st radiation source); and a down conversion material, disposed along a longitudinal axis within the cylindrical optic, for at least one of transmitting or reflecting light transmitted by the light radiation source (abstract).

Concerning claim 21, Iwasa et al. discloses the light radiation source including an LED (abstract).

Regarding claim 22, Iwasa et al. discloses the light radiation source (1 LED) disposed adjacent one lateral end of the cylindrical optic (Fig. 1, left).

Concerning claim 23, Iwasa et al. discloses first and second radiation sources (1st and 2nd LED on left) spaced from each other and both disposed adjacent one lateral end of the cylindrical optic (Fig. 1).

Regarding claim 24, Iwasa et al. discloses the down conversion material including a phosphor for absorbing light in one spectral region and emitting light in another spectral region (abstract). (Fluorescent materials include phosphors.)

Concerning claim 25, Iwasa et al. discloses the down conversion material being disposed substantially parallel to a longitudinal axis of the cylindrical optic (Figs. 1 and 3A).

Regarding claim 35, Iwasa discloses the down conversion material having at least a first side for transmitting or reflecting light (abstract). (Material lining the inside of a tube has a first side in which light enters and a second side, the side touching the tube, in which light exits.)

Concerning claim 36, Iwasa discloses the down conversion material having at least a second side for transmitting or reflecting light (abstract).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harada.

Regarding claim 11, Harada does not disclose a plurality of light emitters. Using a plurality of light emitters is considered to be an obvious duplication of parts. Since the light emitter is well known in the art, it would have been obvious to one of ordinary skill

in the art to use a plurality of emitters to produce more light, since duplicating parts requires only routine skill in the art. See MPEP 2144.04.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harada in view of Broer (U.S. Patent 6,210,012).

Regarding claim 17, Harada does not disclose an optical device of the shape required in the claim. Broer discloses the geometrical shape of the optic device including a box-shaped apparatus (4, Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Broer in the apparatus of Harada to direct light as desired.

8. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada in view of Kano et al. (U.S. Patent 3,875,456).

Regarding claim 18, Harada discloses a reflector (1) surrounding at least a portion of the optic device (Fig. 2). Harada does not disclose a diffuser. Kano discloses a light diffuser (abstract) deposited on top of at least a portion of the reflector (Fig. 2, abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Kano in the apparatus of Singer et al. to collect and diffuse the light as desired.

Concerning claim 19, Harada discloses down conversion material (9) disposed between the source of the light and the reflector (Fig. 3) and the conversion material having a curved shape (Fig. 3).

9. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasa et al.

Regarding claim 26, Iwasa does not disclose at least one light source on each side of the down conversion material. Putting at least one light source on each side of the down conversion material is considered to be an obvious variation. Since the light source and the down conversion material are well known in the art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange to light sources to produce light in the desired directions, since rearranging parts requires only routine skill in the art. See MPEP 2144.04.

Concerning claim 27, Iwasa et al. discloses the light sources mounted on at least one substrate (Figs. 2A and 2B).

10. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasa in view of Harada.

Regarding claim 34, Iwasa does not disclose the down conversion material as being planar shaped. Harada discloses the down conversion material as being planar shaped (5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Harada in the apparatus of Iwasa to convert light in the desired direction and at the desired location. See Fig. 2 of Harada.

Response to Arguments

11. Applicant's arguments filed 3/4/09 have been fully considered but they are not persuasive. Applicant argues that the amendments made to claim 20 make the claim allowable over Iwasa. To the contrary, for the reasons delineated in the rejection above, the claim elements are shown in Iwasa. Note well the designation for the separate segments in the rejection. Furthermore, applying the fluorescent layer along the wall of the tube is parallel to the longitudinal axis because the wall is parallel to the longitudinal axis. Therefore, this element is shown by Iwasa. In addition, the end LEDs are near (adjacent to) the end of the tube for the reasons disclosed in the rejection of claim 20. Nothing in the claim requires that the middle be devoid of LEDs. MPEP 2111 requires a broad reading of the claims, and the Applicant is arguing for a much narrower one.

Applicant also argues that no suggestion exists in Iwasa to put the LEDs on each side of the down conversion material. To the contrary, this would be obvious. The down conversion material applied to the inner sides of the tube has at least two sides (left and right or top and bottom). One would merely have to put the LEDs on the other side of the board to have the LEDs facing both sides of the down conversion material. One would do this to direct light in the desired (both opposite) directions. One would do

this to more effectively light an area. Thus, this is an obvious variation to one of ordinary skill in the art. This suggestion does not have to be in Iwasa. The principles of obviousness should not be applied in a strict manner but can go beyond the teachings of a particular reference. *KSR International Co. v. Teleflex, Inc.*, 82 USPQ 2d 1385, 1397 (US 2007). Applying this decision in this case would render claims 26 and 27 obvious, and the rejections stand.

The other arguments are moot in view of new grounds of rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHARON E. PAYNE whose telephone number is (571)272-2379. The examiner can normally be reached on regular business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sharon E. Payne/
Primary Examiner, Art Unit 2875